Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Period: \_\_\_\_\_\_\_ Date: \_\_\_\_\_\_\_\_\_\_\_\_\_

**Periodic Trends Homework**

1. Define the following:
   1. Electronegativity:
   2. Ionization energy:
   3. Atomic radius:
2. Rank the following elements by increasing atomic radius: carbon, aluminum, oxygen, potassium.
3. Rank the following elements by increasing electronegativity: sulfur, oxygen, neon, aluminum.
4. Rank the following elements by increasing atomic radius: sulfur, oxygen, neon, aluminum.
5. What is the relationship between atomic radius and ionization energy?
6. Indicate whether the following properties increase or decrease from left to right across the periodic table.
   1. atomic radius
   2. first ionization energy
   3. electronegativity (excluding noble gases)
7. Circle the atom in each pair that has the largest atomic radius.
   1. Al or B
   2. Na or Al
   3. S or O
   4. O or F
   5. Br or Cl
   6. Mg or Ca
8. Circle the atom in each pair that has the greater ionization energy.
   1. Li or Be
   2. Ca or Ba
   3. Na or K
   4. P or Ar
   5. Cl or Si
   6. Li or K
9. Circle the atom in each pair that has the greater electronegativity.
   1. Ca or Ga
   2. Br or As
   3. Li or O
   4. Ba or Sr
   5. Cl or S
   6. O or S

*Ionic Size and Reactivity*

Circle the atom with the LARGEST atomic radius.

1. Li or B
2. V or Nb
3. Fe or Fe+3
4. S or S-2
5. K or Mn
6. Na or Na+1
7. N or N-3
8. Ni or Mo

Circle the MOST REACTIVE atom.

1. Sc or V
2. Na or Cs
3. C or S
4. P or Kr
5. Br or F
6. Ru or Cd
7. N or Ne

Sr+2 has a smaller atomic radius than Sr because…

Osmium (Os) is more reactive than ruthenium (Ru) because…